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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,537	03/07/2005	Toshio Narita	042541	1210

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EXAMINER

LAVILLA, MICHAEL E

ART UNIT PAPER NUMBER

1775

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/506,537

Applicant(s)

NARITA ET AL.

Examiner

Michael La Villa

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20040903.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.
2. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.
3. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.
4. The abstract of the disclosure is objected to because the Abstract may exceed 150 words. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

5. Claim 1 is objected to because of the following informalities: Regarding the first "wherein" clause in Claim 1, it appears that a verb is missing or is of improper form. Should "comprising" in line 5 read "comprises"? Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:
7. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- I. Regarding Claims 1-4, it is unclear what is the relationship between the claimed layer compositional and structural limitations with respect to the article prior to diffusion treatment and the article after diffusion treatment. Does the recitation of a layer in any of the claims always refer to an after diffusion treatment article? Must these layers be present both before and after diffusion treatment?
- II. Regarding Claim 1, it is unclear whether the claimed "multi-layer surface structure" includes the Ni-alloy substrate and any layers? Does this surface structure necessarily describe what is disposed on the claimed Ni-alloy substrate and hence is separate from the substrate? It is unclear what is the antecedent basis of the phrase "on the substrate surface." What constitutes the surface on which the inner and outer layers are disposed? What is the relationship between this "substrate surface" and the surface to which the aluminum diffusion treatment is applied? Does the nature of the "substrate surface" differ when the layers of Claims 2-4 are present?
- III. Regarding Claims 2-4, it is unclear whether these described layers refer to layers that are present before diffusion treatment, after diffusion treatment, or both. Are they layers that are formed

subsequent to aluminum diffusion treatment? Regarding Claims 2 and 3, it is unclear whether these limitations mean that the claimed article should possess both a Cr-containing layer and an alpha-Cr layer or whether this Cr-containing layer necessarily is the alpha-Cr layer after diffusion treatment.

- IV. Regarding Claim 4, it is unclear whether this limitation means that the claimed article should possess a Ni or NiAl layer, separate from the outer layer, or whether this Ni or NiAl layer necessarily becomes the outer layer of Claim 1 after aluminum diffusion treatment.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
10. A person shall be entitled to a patent unless –
11. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
12. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Rairden, III USPN 3,998,603. Rairden, III teaches a nickel superalloy substrate that coated with a nickel/chromium layer and then diffusion treated with aluminum. See Rairden, III (Abstract; Figures 1 and 3; col. 2, lines 5-56; col. 2, line 61 through col. 3, line 5; col. 3, line 29 through col. 7, line 29). Rairden, III explicitly teaches the alpha chromium layer. As well, Rairden, III provides information on the atomic composition of the outer layer material. This layer is shown to possess in excess of 20 atomic percent of aluminum and varying relative

amounts of nickel and aluminum, which would be expected to obtain beta and gamma prime phases in view of applicant's phase diagram at Figure 3 of applicant's Specification. In other words there are regions in the outer layer that obtain about 40 to 60 atomic percent aluminum versus 60 to 40 atomic percent nickel. Likewise, there are regions in the outer layer that obtain about 75 atomic percent nickel and 25 atomic percent aluminum. The concentration profile in Rairden, III also demonstrates regions that can be identified with the claimed Cr-containing layer of Claims 2 and 3, the additional nickel layer of Claim 4, and the nickel-chromium layer of Claim 6.


### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is (571) 272-1539. The examiner can normally be reached on Monday through Friday.
14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael La Villa  
2 February 2006

  
MICHAEL E. LAVILLA PH.D.  
PRIMARY EXAMINER